

Orange County Sanitation District

Capital Improvement Program
ANNUAL REPORT
Fiscal Year 2019/20



Our Mission

“To protect public health and the environment by providing effective wastewater collection, treatment, and recycling.”



Letter from the Director of Engineering

The past year has been different, to say the least. As the world deals with the impacts of the COVID-19 pandemic, I have been pleased to see a diverse Orange County Sanitation District (OCSD) workforce that continues to be dedicated to their work. We may be socially distanced, but we continue to push forward and collectively work towards the execution of OCSD's Capital Improvement Program.

As the Capital Improvement Program has evolved with focusing on aging infrastructure, we have experienced the next wave of design projects. The next wave will be transitioning to large multi-year construction efforts, including the Headworks Rehabilitation at our Plant No. 1 facility in Fountain Valley and the Primary Clarifiers Replacement at our Plant No. 2 facility in Huntington Beach with construction values of \$293 and \$131 million, respectively.

With the unprecedented impacts of a global pandemic, we have had to adapt and adopt new ways of doing business, and while doing so, we continue to surge onward. During the 2020-21 fiscal year, we are anticipating to advertise over 25 capital projects with a total construction value of over \$550 million.

On behalf of the Engineering Department, I present this annual report. It was developed to present the progress made on the Capital Improvement Program between July 1, 2019 and June 30, 2020 which includes over 120 capital projects through the various phases from planning, design, construction, and closeout. I hope this report increases your understanding of our Capital Improvement Program and our commitment to protect public health and the environment.

Kathleen T. Millea

Kathleen T. Millea, P.E.
Director of Engineering



Construction crew finishing the installation of a 33-inch diameter pipeline in a 25-foot deep trench in the City of Brea.

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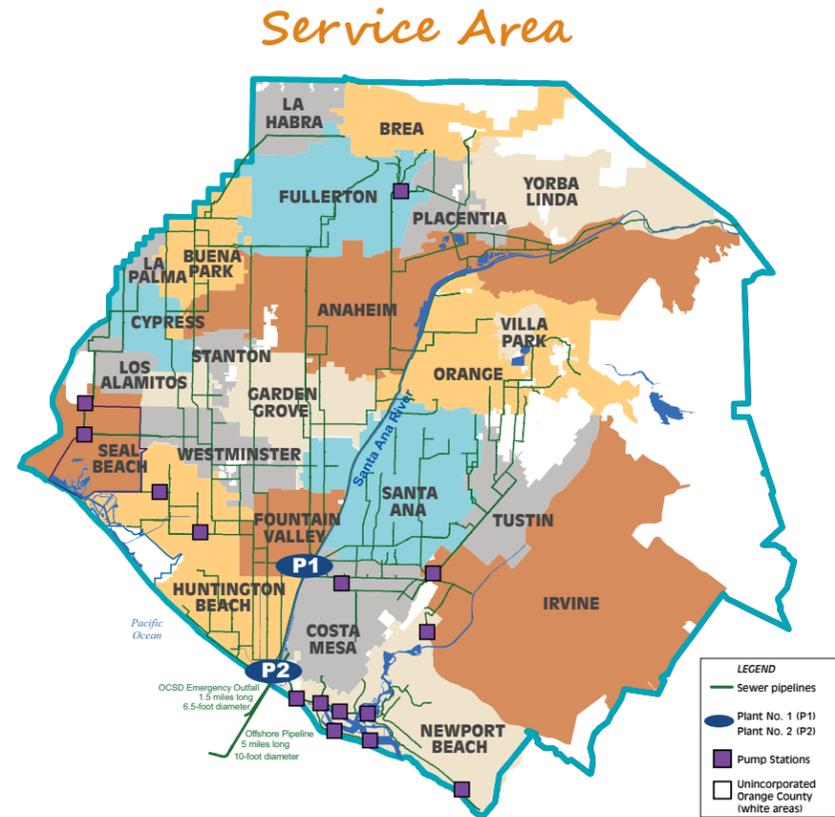
Introduction and Background

About the Agency

The Orange County Sanitation District (OCSD) is a public agency that operates one of the largest wastewater facilities in the United States, providing wastewater collection, treatment, and recycling for approximately 2.6 million people in central and northwest Orange County.

Agency At-a-Glance

- 1954 year began operating
- 480 square mile service area
- 2.6 million people serviced
- 2 facilities
- 189 million gallons per day wastewater treated
- 388 miles sewer pipelines
- 15 off-site pump stations

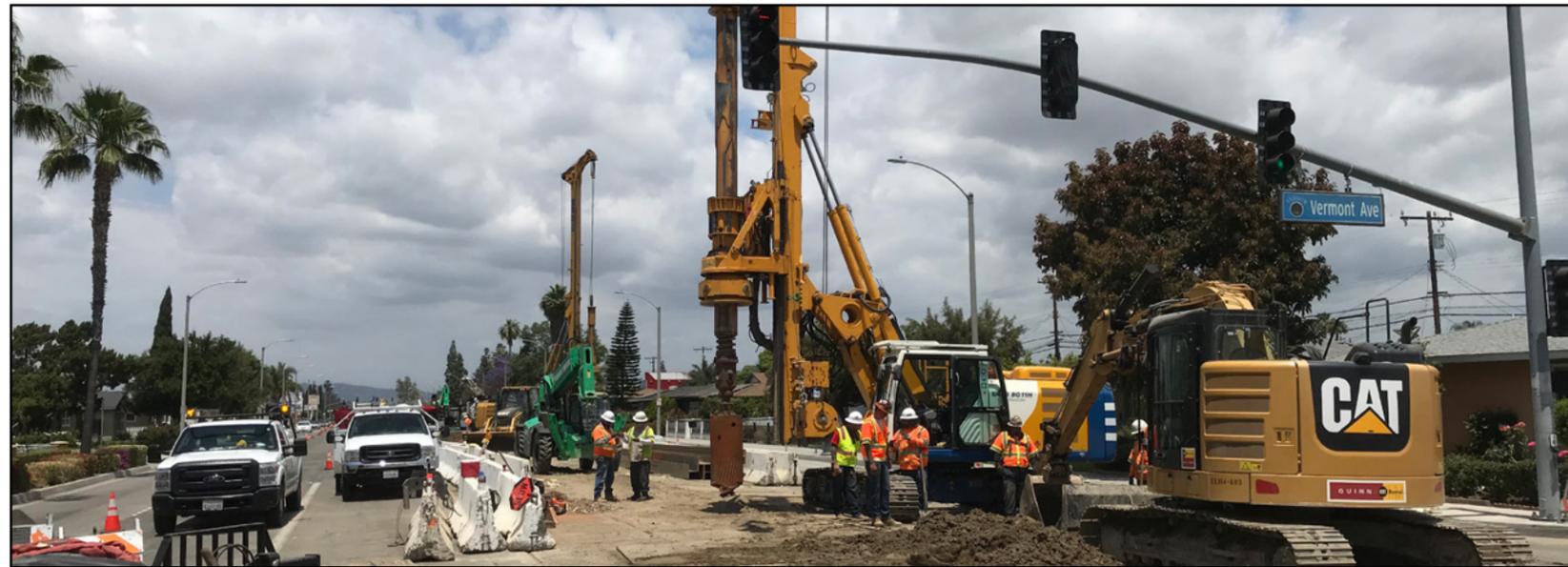


Capital Improvement Program Overview

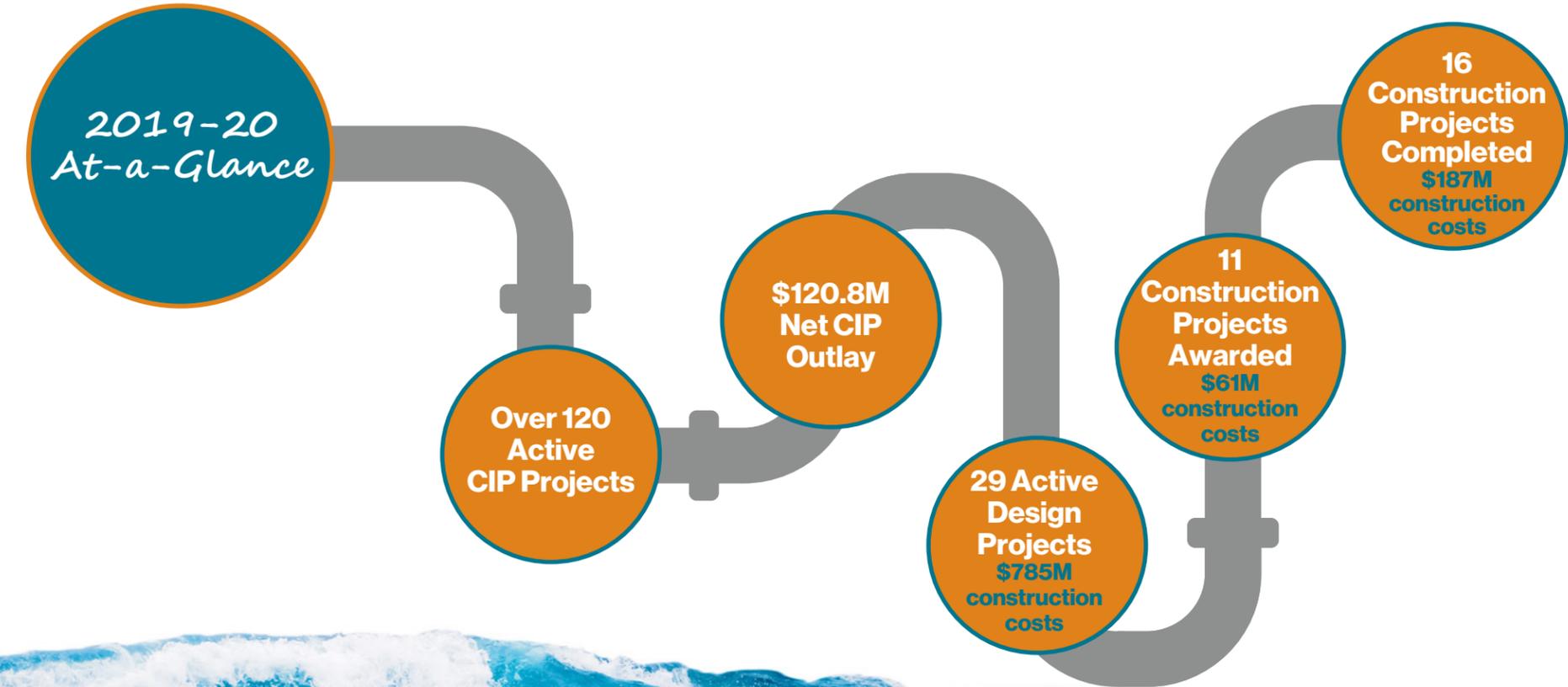
The Pacific Coast is significant to OCSD and our mission to protect the public health and the environment. Treated effluent that cannot be recycled is discharged into the ocean through a 5-mile long ocean outfall. We regularly monitor the marine life, sediment quality, and water quality within 38 miles of ocean off Huntington Beach.

OCSD's Capital Improvement Program (CIP) is a long-term plan to rehabilitate, replace and update the agency's regional facilities. Endless ocean waves are characterized by size, wind, current, tide, and ocean current among other factors. Like these waves, OCSD's CIP continuously cycles and evolves, adjusting its overall purpose depicted on the need of its existing assets and systems. OCSD's CIP began by focusing on creating the initial infrastructure of the collections and treatment system, shifted to expanding capacity, and now on renewing aging infrastructure. OCSD's CIP has been carefully put together to cost-effectively meet future regulatory requirements, incorporating climate resiliency, seismic reliability, and maximizing resource recovery. Although the focus of the CIP may shift over time, one thing remains clear, to ensure OCSD can continue to provide the necessary levels of service.

During the 2019-20 fiscal year, the CIP program included over 120 capital projects with a net CIP outlay of \$120.8 million. CIP projects take several years to complete the planning, design, and construction cycle. This report highlights some of the major capital projects through the various project phases the Engineering Department was actively involved in throughout the year. For more information regarding our CIP please visit our website at www.ocsd.com/construction.



The Newhope-Placentia Trunk Sewer, Segment B project is currently in construction on State College Boulevard in the City of Anaheim.



Planning

Our mission is to protect public health and the environment by providing effective wastewater collection, treatment, and recycling. As part of OCSD's long-term Capital Improvement Program (CIP) planning efforts, studies evaluate various areas of the plants and collection system to determine their condition and identify, evaluate, and determine the best alternative for any deficiencies or improvements needed. The results of these studies help support, define, and refine future CIP or short term maintenance projects to improve our facilities and systems. Staff work carefully to identify all the necessary scope of work items in the planning phase of projects to assist with successful execution to reduce risks.

The next pages are some of the planning studies conducted during the past fiscal year.

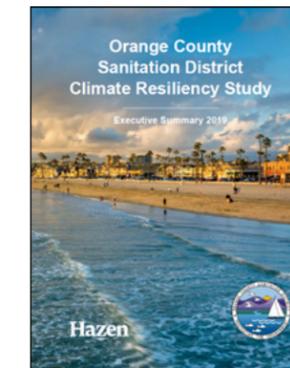
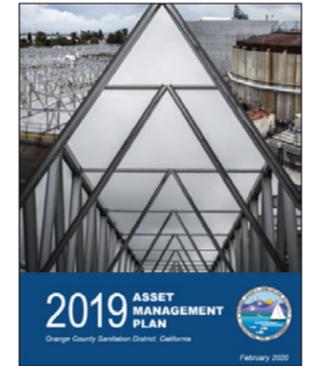


Partial view of OCSD Plant No. 2 in Huntington Beach.

Asset Management Plan

OCSD's Facilities Master Plan lays out a 20-year CIP. Within the Engineering Department, the Planning Division produces the Asset Management Plan that updates, modifies, and manages the 20-year CIP by continuously assessing the condition of OCSD's existing assets and systems to ensure they can provide the necessary levels of service. The plan includes an inventory of critical assets, an evaluation of their condition and performance, and an implementation plan to maintain, rehabilitate, and replace these assets to meet the required levels of service at the lowest life cycle cost and at an acceptable level of risk.

The Asset Management Plan was finalized in December 2019 and will be updated annually.



Climate Resiliency Study

There are risks such as flooding, tsunami, wildfire, and extreme heat events. Climate change threatens to increase the risk posed by natural hazards to OCSD facilities. These risks have serious implications for public, staff, and environmental health within and around OCSD's service area. In November 2019, OCSD completed the Climate Resiliency Study that involved assessing the risks posed by climate change and developing adaptations to mitigate those risks. The outcome was a Climate Resiliency Plan, one of the first in California broadly and Orange County specifically to integrate the implications of climate change into improved design standards, emergency preparedness, and facility operations for the future. Climate resiliency is being integrated into ongoing CIP projects.

The Climate Resiliency and Adaptation Plan received the American Academy of Environmental Engineers and Scientists (AAEES) 2020 Excellence in Environmental Engineering and Science Awards Grand Prize in the Planning Category.

Stormwater Master Plan

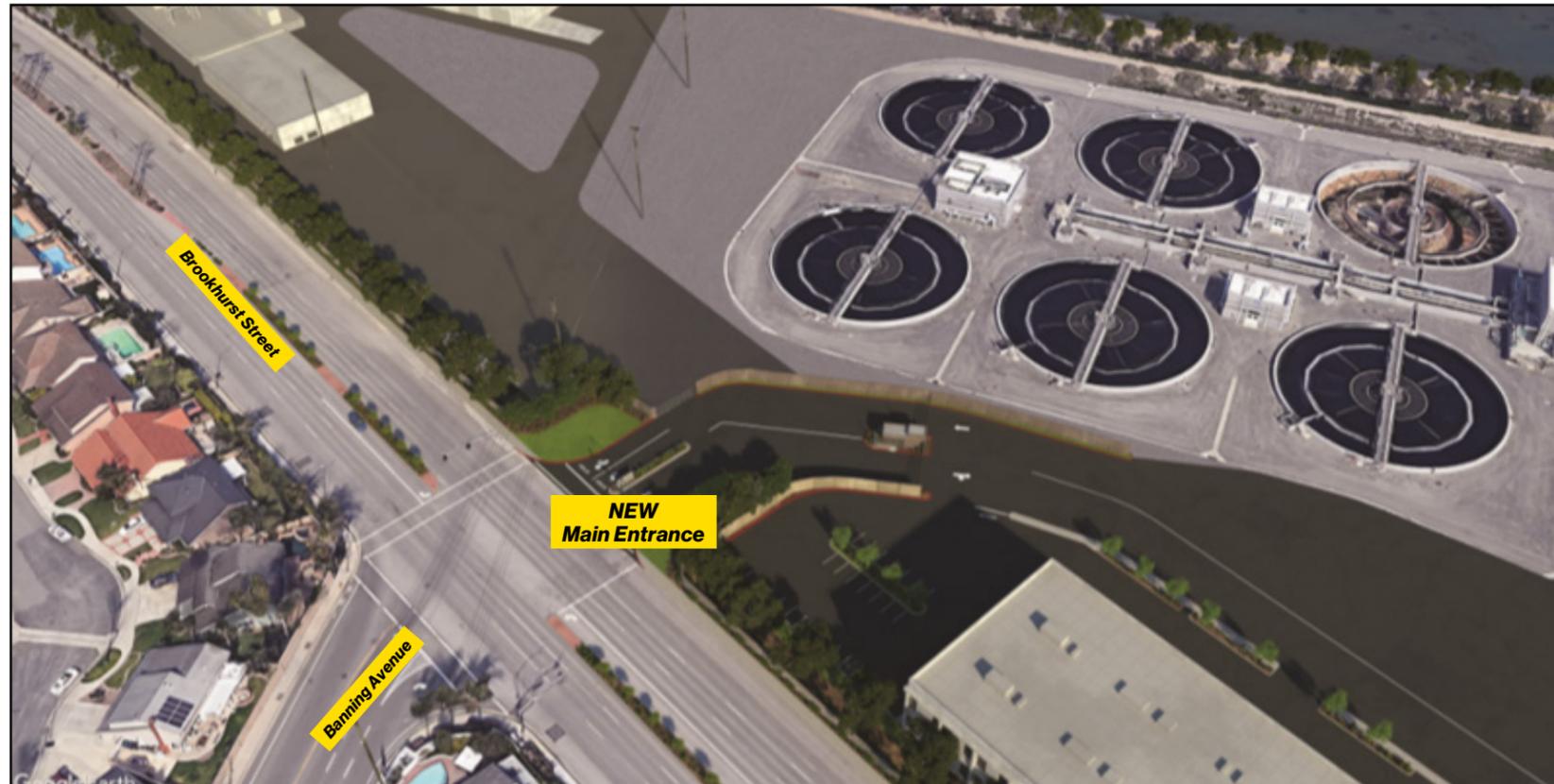
In November 2019, OCSD updated the Stormwater Master Plan to improve the management of onsite stormwater and demonstrate compliance with the stormwater provisions of the Waste Discharge Requirements. The updated Stormwater Master Plan not only looked at present requirements, but also provides guidance on improvements that will serve OCSD over the next decade as stormwater regulations evolve.



Plant No. 2 Future Site Development Plan

This study evaluated locations for future support facilities at Plant No. 2 in Huntington Beach. It established a site layout incorporating existing CIP projects and other focused master plans such as the Facilities Master Plan and Biosolids Master Plan that were completed in 2017.

The southern end of the plant has several ongoing design and construction projects reflected in previous plans. This study developed a site layout moving the location of the main entrance and non-treatment facilities to the northern end of the plant. Having amenities such as a new warehouse, maintenance yard, and administrative building in closer proximity to the new main entrance location allows current locations to become additional space for future treatment facilities. Preliminary layouts, street plans, and architectural renderings allowed staff to receive feedback from the City of Huntington Beach. This information was also provided to the Plant No. 2 neighborhood as part of OCSD's community outreach program.



Rendering of a new site layout which moves the location of the main entrance of OCSD Plant No. 2 in Huntington Beach.



Demolition of the old truck loading bays on the Sludge Dewatering and Odor Control project at OCSD Plant No. 2.

Design

Our design choices will define the future. The Engineering Department is in the midst of a design tidal wave of sorts, with a number of large capital projects in design. By the end of fiscal year 2019-20, there were 29 projects actively in design valuing \$785 million in construction costs.

During a storm event, big waves can be dangerous and come crashing down on you. It can be overwhelming. When you think you have made it through, another big wave crashes and knocks you off your feet, taking the breath out of you. Through strong leadership and vision, OCSD has pushed through the tsunami wave of design projects during the past year and will continue to do so in the current fiscal year. Instead of allowing one project to cripple the efforts and reduce resources on other projects, simultaneous collective efforts have been demonstrated. Through teamwork and an understanding of the vision of OCSD's future, staff have collaboratively dedicated the necessary attention to detail to deliver a careful and thoughtful design on many ongoing projects.

The following pages highlight some of the projects in the plants and collection system that have been in design for the past several years, many that will advertise for bid in the coming months.



Construction crew looking down a 25-foot deep trench on the Carbon Canyon Pipeline Sag Repair project in the City of Brea.

Headworks Rehabilitation and Expansion at Plant No. 1

The Plant No. 1 Headworks receives untreated wastewater from six major trunk sewers. We receive approximately 120 million gallons of wastewater a day at Plant No. 1. Headworks combines and measures the influent and removes debris and grit. From there wastewater is pumped to primary and secondary treatment facilities and then to recycling at the renowned Ground Water Replenishment System. This project includes major rehabilitation, new structures, and demolition of existing facilities with a construction value of \$293 million.

Headworks is the heart of the plant. As the first point of entry for wastewater, all essential plant processes and utilities must remain in service. Odor control must always be provided. These functions need to remain online as construction replaces existing facilities before any demolition can occur. Skilled doctors perform open heart surgery methodically with a capable team and well thought out plan. Construction of the Headworks will be the “open heart surgery” of Plant No. 1. The project has been undergoing a long and thorough design phase for the past several years.

Design is finalized and construction will begin in 2021, lasting over 7 years.

A-Side Primary Clarifiers Replacement at Plant No. 2

There are 14 primary clarifiers at Plant No. 2 in Huntington Beach. The “A-Side” clarifiers are the first set of four clarifiers constructed in the 1960's. The A-Side Primary Clarifiers Replacement project not only constructs four new primary clarifiers, it also includes the construction of two primary sludge pump stations, odor treatment complex, electrical distribution center, electrical and fiber systems, and process controls with a construction value of \$131 million.

The current A-Side clarifiers have dome covers and measure 140-feet in diameter and 21-feet high from the ground surface. The four new circular clarifiers will have aluminum flat covers instead of the dome shape, with hinged panels to allow for operator observation and maintenance access.

Final design is near completion. Construction will begin in 2021 and will be completed in 2026.



Aerial view of OCSD Plant No. 1 in Fountain Valley. Represented as a heart, Headworks is located at the north-eastern end of the plant.

Digester Gas Facilities Replacement

As a resource recovery agency, the digester gas facilities at both plants capture, clean, and compress digester gas from the treatment process and converts it to power the Central Generation facilities.

This project will rehabilitate and replace digester gas facilities at both Plant Nos. 1 and 2 to meet current and future OCSD needs such as Air Quality Management District and National Fire Protection Association regulations, and future projected gas production. The construction budget is \$118 million.

Design on this project will continue to the next year with anticipated construction to commence in 2022.



Digester gas compressor at OCSD Plant No. 1 will be replaced as part of the Digester Gas Facilities Replacement project.

Rehabilitation of Western Regional Sewers

This project is comprised of three separate contracts that encompass the western region of OCSD's service area. This project covers an area of over 20 miles of sewer pipelines and associated manholes primarily in the public rights of way in the cities of Anaheim, Buena Park, Cypress, La Palma, Cypress, Seal Beach, and unincorporated Orange County.

Staff has worked and will work closely with the involved cities throughout the design of these projects. Community outreach has also taken place during the design phase to identify and mitigate risks before construction occurs. City coordination and community outreach will continue throughout construction.

The Orange Western Sub-trunk Rehabilitation covers approximately 13,000 feet of pipe. The Los Alamitos Trunk Sewer Rehabilitation covers approximately 24,000 feet. These projects are anticipated to begin construction in the next year. The Cypress Trunk Sewer Rehabilitation covers approximately 32,000 feet of sewer pipeline and design will begin in 2021.



View of the old solids storage and truck loading facility that was demolished as part of the Sludge Dewatering and Odor Control Project at OCSD Plant No. 2.

Construction

The wave of design projects will transition to active construction projects. While many actions across the nation have been taken in response to the 2020 global pandemic, OCSD's essential services have been able to continue to service the community. Construction has been ongoing before, during, and will continue as we get through times of uncertainty. The following are a few highlights of the active construction projects over the past year.



A current OCSD collection system construction project is the Newhope-Placentia Trunk Replacement project on State College Boulevard in Anaheim.

Safety Improvements Program

Several years ago, a Facility Wide Safety Assessment was conducted to review safety issues at OCSD's two plants and existing pump stations. Some of the safety items identified that needed to be addressed included electrical, fall protection, regulated compliance, and walkway hazards. While some of the issues may have a low probability of causing injury, the consequences could be high.

Safety is a top priority and as a result, OCSD developed a plan to swiftly address the safety items. Some of the identified higher risk safety items were immediately addressed by the Operations and Maintenance Department. Other items were added to already existing capital projects where possible. The Safety Improvements Program was created to address all remaining safety items. The program comprised of 12 construction projects to streamline the improvements. Implementation of the individual projects that make up the Safety Improvements Program have been ongoing for a few years now. During fiscal year 2019-20, six safety construction projects were completed. Two remaining projects will be completed during fiscal year 2020-21, closing out the Safety Improvements Program.



Guardrails are being installed at the OCSD Plant No. 2 Maintenance Building as part of the Safety Improvements Program.

Headworks Modifications at Plant No. 2 for GWRS Final Expansion

In partnership with the Orange County Water District (OCWD), our agencies recycle enough water to supply the needs of 850,000 people in central and northern Orange County through the Groundwater Replenishment System (GWRS). Construction is ongoing on the Final Expansion phase of this internationally recognized water purification system for indirect potable reuse.

Currently influent enters the existing Headworks at Plant No. 2 in Huntington Beach via four trunk lines before being sent to primary and secondary treatment facilities and then pumped out to the ocean. The Headworks Modification project will make changes and additions to infrastructure to separate reclaimable and non-reclaimable flows, allowing reclaimable flows to be utilized for the GWRS facility. Non-reclaimable flows will continue to be pumped out to the ocean. The final phase of GWRS will provide a reliable water source for over one million people, increasing the treatment capacity from 100 to 130 million gallons per day.

Construction began Spring 2020 with completion by 2023.

Outfall Low Flow Pump Station

There are many components to this project. With the final expansion of GWRS, less flow will be pumped out to the ocean. This project will construct a new outfall low flow pump station to more efficiently handle the lower effluent flows, rehabilitate the Ocean Outfall Booster Station to continue to accommodate peak wet weather flows, replace the plant water pump station to maintain separation of reclaimable and non-reclaimable flows, and provide an electrical SCADA (supervisory control and data acquisition) system with load shedding.

Some major construction activities over the year include the completion of cement deep soil mixing and working on the plant water pump station junction structure. The Ocean Outfall Booster Station rehabilitation and significant progress on the electrical components of the project are ongoing.

Construction is expected to be completed in 2023.



Excavation and shoring over the 120-inch diameter secondary effluent pipeline at OCSD Plant No. 2 in preparation for the plant water pump station junction structure.



Construction of the plant water pump station junction structure is underway at OCSD Plant No. 2.

Collection System

The OCSD collection system consists of all the sewer pipelines and pump stations that collect and transport wastewater for treatment and recycling. OCSD has the responsibility to make sure the collection system has enough capacity to keep pace with economic growth and is in reliable condition. Routine maintenance keeps the wastewater flowing, but as infrastructure continues to age, CIP projects to renew or replace aging pipelines and pump stations are necessary.

There are nearly 400 miles of pipelines and 15 pump stations that make up the OCSD collection system. The following are some of construction projects that were active in the streets.



On the Westminster Blvd. Sewer Project, trench shield shoring is used to stabilize the excavation for the dual 36-inch force main pipe installation.

SARI Rock Stabilizers Removal

Several years ago, a four-mile segment of the Santa Ana River Interceptor (SARI) pipeline was relocated out of the floodplain of the Santa Ana River. During construction of the new SARI pipeline, the portion of pipe in the floodplain needed temporary protection from erosion along the riverbed. Emergency permits allowed placement of over 22,000 tons of large rocks to protect the pipeline. After construction of the new alignment of the SARI was completed, this project removed the stabilizer rocks to fulfill the permit requirements.

The project was successfully completed in Spring 2020.



Rocks being removed on the SARI Rock Stabilizers Removal project along the Santa Ana River riverbed.

Newhope-Placentia Trunk Replacement, Segment B

OCSD is upsizing a seven mile stretch of sewer pipeline along State College Boulevard in the cities of Anaheim and Fullerton. Segment A was completed in 2017 and replaced three miles in Fullerton. With a construction budget of \$60 million, Segment B is currently replacing the remaining four miles of OCSD's Newhope-Placentia Trunk in Anaheim. Being on the streets, this project has had a very noticeable impact to the public within our collection system.

One of the more complex sections of this project began in Spring 2020, replacing the last one-mile portion of the pipeline. The new pipeline is being constructed in the same alignment, requiring bypass piping while the construction takes place to avoid any disruptions to sewer service. In an effort to minimize risk and carefully expedite work production, long 20-hour work shifts are implemented. Not only does this require careful multi-agency coordination and many staffing resources, it can be a big strain on the impacted public. Construction outreach has been very active throughout the design and construction of the project by keeping the community informed of current and upcoming construction schedules.

Construction is scheduled to be completed in 2021.

More information about the project on State College Boulevard can be viewed by visiting www.ocsd.com/StateCollege.



Construction crew is shown pre-drilling a shoring beam on State College Boulevard in the City of Anaheim.

Westminster Blvd. Sewer Project

Earlier this Spring 2020, construction began on the Westminster Blvd. Sewer Project. With a construction budget of \$27 million, the project will replace the existing dual sewer force main system starting from the Seal Beach Pump Station to three miles east along Westminster Blvd., in the cities of Seal Beach and Westminster. The current force main system consists of only one of the two pipelines in service.

When construction is completed in 2022, there will be two fully functional force mains that will increase reliability and continue to provide appropriate capacity.

More information about the Westminster Blvd. Sewer Project can be viewed by visiting www.ocsd.com/Westminster.



Two excavators are used to install a 200-ft section of a new 36-inch diameter force main within the 10-ft deep trench excavation on Westminster Boulevard in the City of Seal Beach.

Community Outreach Program

Not only do we care about the public health and environment, we also care about the community. We understand construction projects can be a nuisance with noise, dust, traffic, and other associated impacts to the community.

The Community Outreach Program provides opportunities for people to learn about the project need and what to expect. This program promotes transparency, education, and building relationships. Goals of the program include promoting awareness and an understanding of the importance of the essential services OCS D provides to public health and the environment.

A variety of outreach tactics are used to reach an expansive audience. They range from traditional printed material, an online presence with social media and a dedicated project webpage, in-person community meetings, email notifications and text alerts. Whether it is providing general project information, notifying about scheduled work hours and impacts, or a project update, we aim to connect and share with the community. Community liaisons will work closely with cities within the project location to gain insight on the cities' first-hand community knowledge, combine resources, and coordinate activities.

We are very proud of the outreach efforts we put forward and working closely with the community. The Newhope-Placentia Trunk Replacement Project, more publicly referred to as "The State College Project" since the project area is on State College Boulevard, received awards for Community Engagement and Outreach for Santa Ana River Basin Section (SARBS) and California Water Environment Association (CWEA).

Get additional details about projects by visiting www.ocsd.com/construction or by calling our community liaisons at 714.378.2965 or email ConstructionHotline@ocsd.com.



Residents attend a public community meeting to learn more about the State College Sewer Project and the construction taking place in their neighborhood.

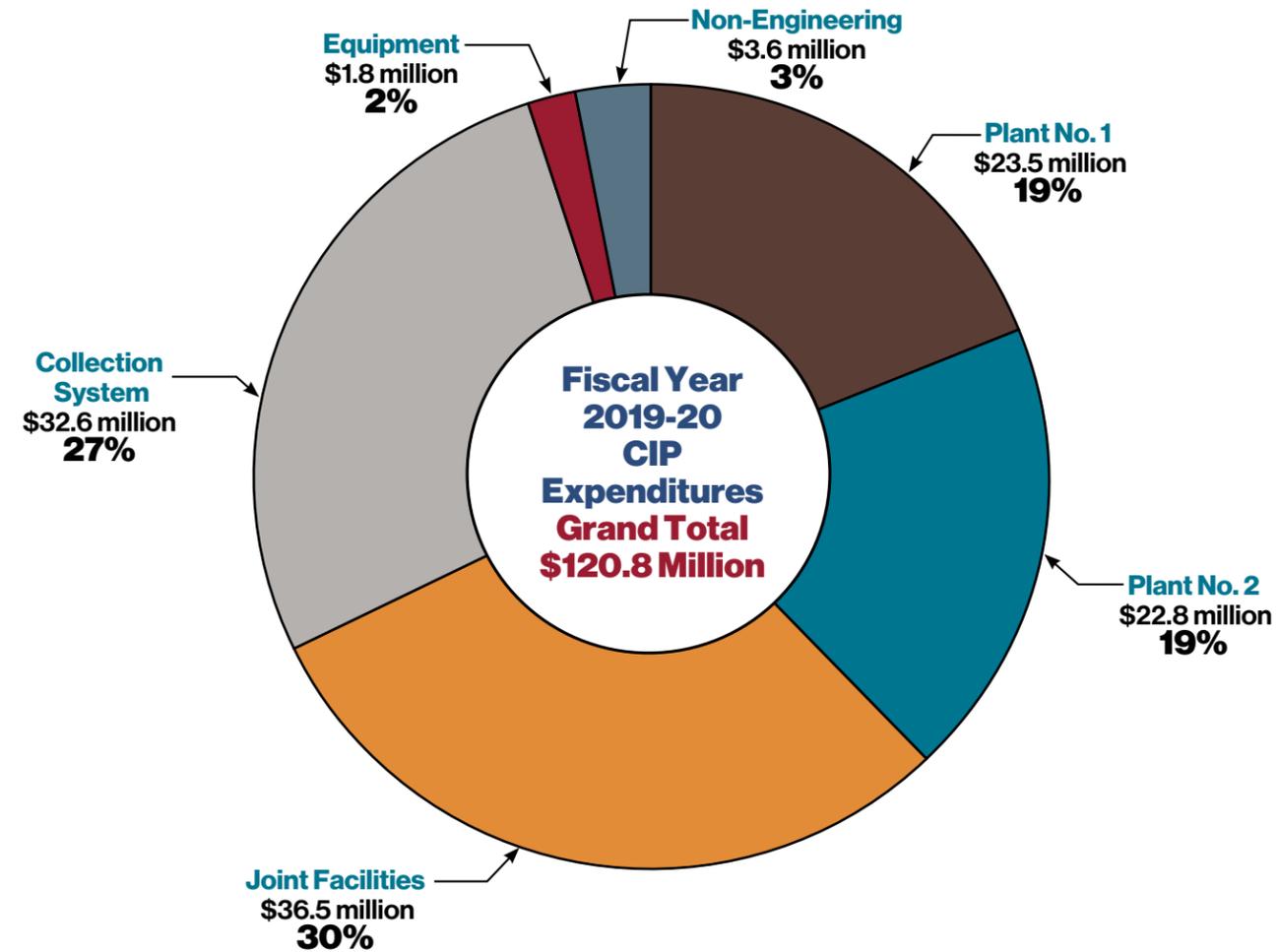


Sound blankets have been installed to minimize public impacts while construction work occurs on State College Boulevard in the City of Anaheim.

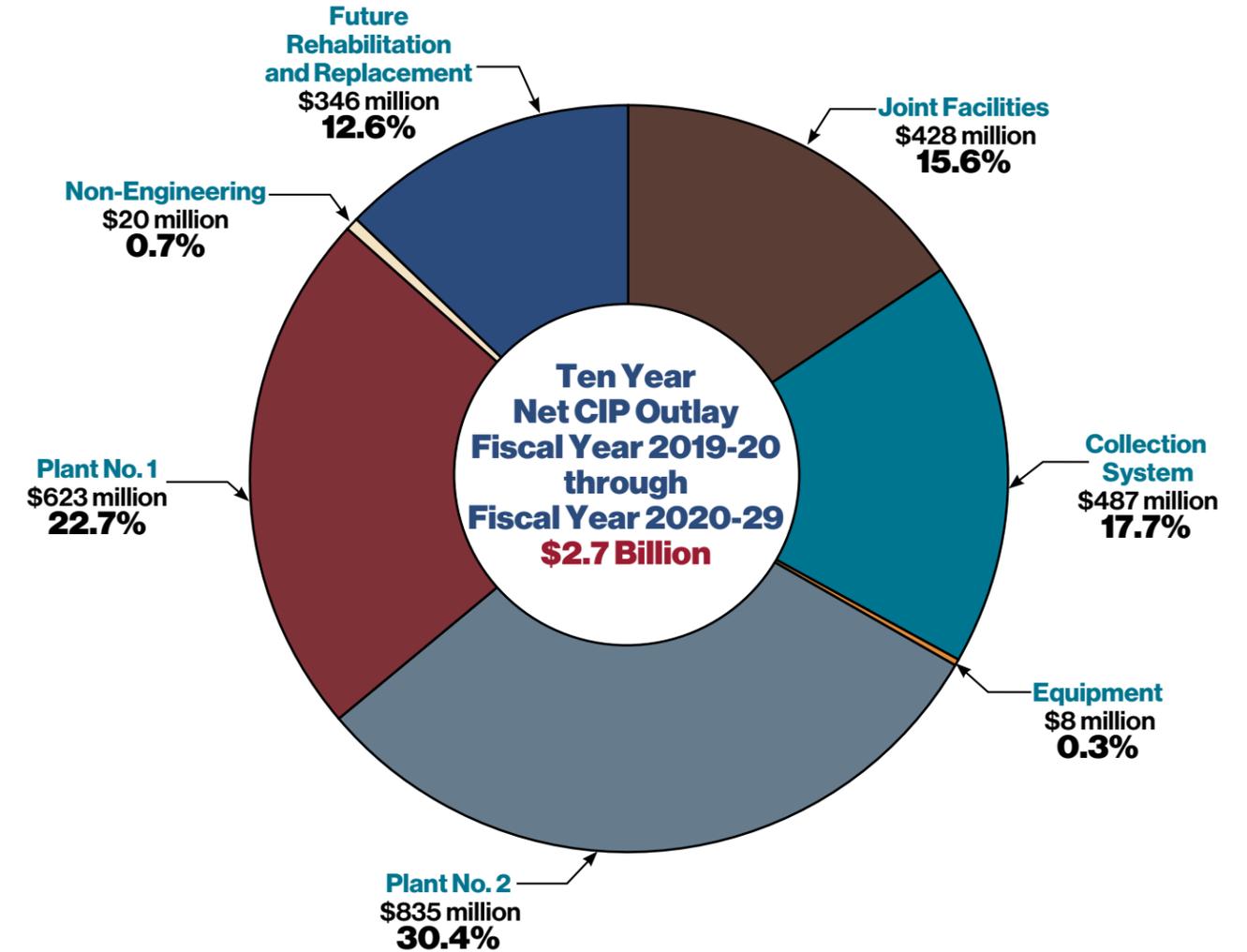
Financial Data

The budget for the Capital Improvement Program (CIP) is reviewed and approved by the OCSD Board of Directors on an annual basis. The proposed budget provides for the improvements, rehabilitation, replacement, expansion, and upgrades of facilities. Each year, staff validates the active and future CIP projects to ensure the project scopes of work, schedule and cost estimates are accurate.

The pie chart below shows the Fiscal Year 2019-20 CIP project expenses, or expenditures, of \$120.8 million. It also includes expenses from equipment and non-engineering projects by Information Technology and Operations and Maintenance.



Similar to the Fiscal Year 2019-20 CIP Expenditure, the ten year CIP budget shows the breakdown of projects occurring at Plant No. 1, Plant No. 2, joint facilities, and the collection system. Projects that have not been fully scoped yet are represented as future rehabilitation and replacement. Non-engineering projects are expenses from Information Technology and Operations and Maintenance. For the next ten years, the net CIP Outlay is \$2.7 Billion.

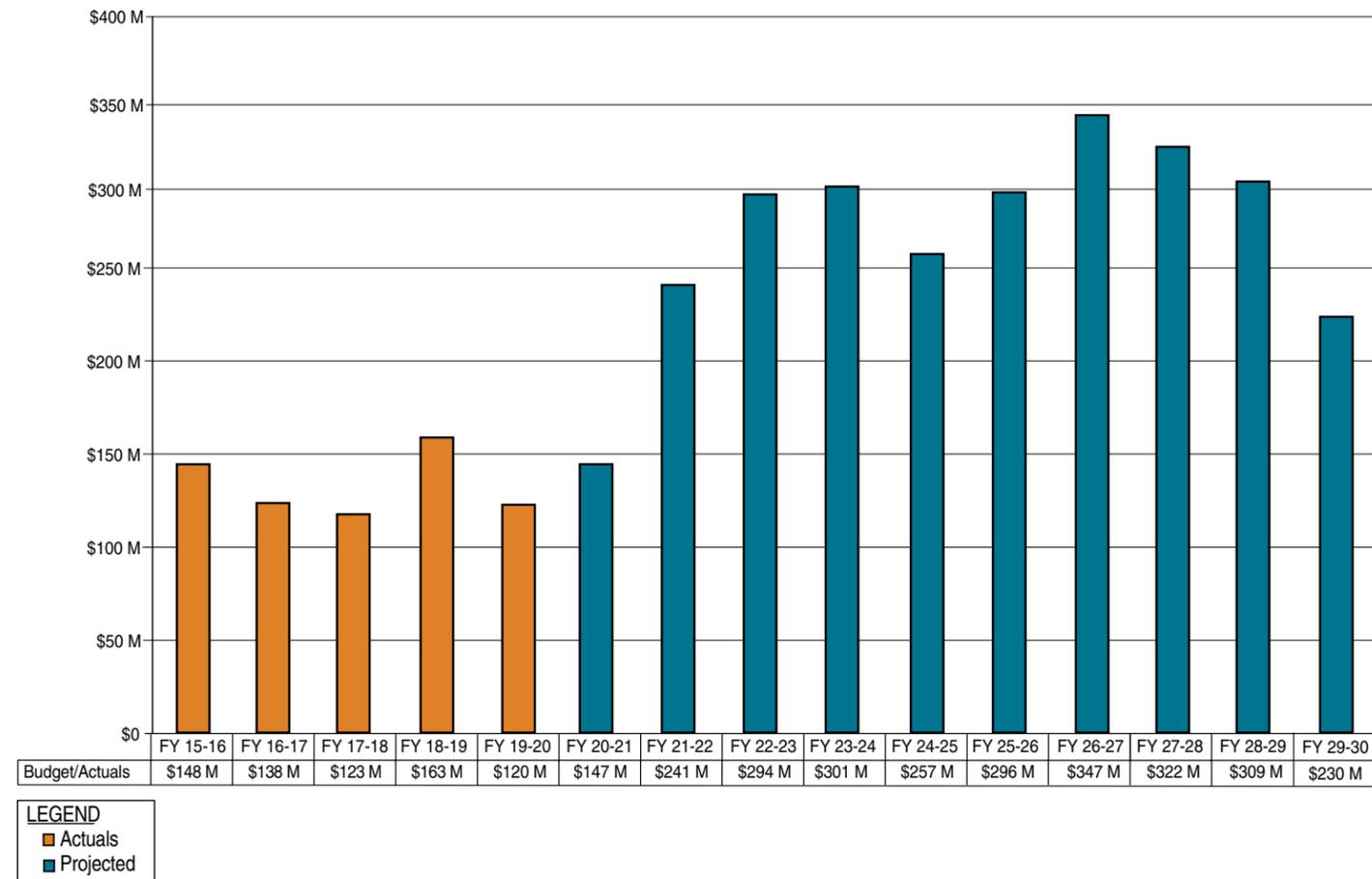


Program Cash Flow

The current CIP is focused on aging infrastructure at both plants and OCSD service area. The coming years include the start of construction projects rehabilitating the headworks at Plant No. 1, replacing primary clarifiers at Plant No. 2, and replacing the Seal Beach Pump Station in the Collection System.

The chart below shows the actual expenditures over the past five years and the projected CIP budget for the next ten years.

Annual Net CIP Outlay



Primary Clarifiers at OCSD Plant No. 2.

Contract Activity

The Contracts Administration and Purchasing divisions support the Engineering Department in the procurement of contracts for studies, design consultants, short-term maintenance and public works construction projects. Many projects take several years to complete the planning, design, and construction phases before closing out.

As progress is made on projects throughout the year, new contracts are also awarded and construction contracts completed, as listed in the following tables.

PLANNING STUDIES CONTRACTS AWARDED

Location(s)	Project Number	Project Name	Consultant	Amount of Award	Date of Award
Plant No. 2	PS18-09	Ocean Outfall Condition Assessment and Scoping Study	Carollo Engineers, Inc.	\$2,744,000	March 2020
Plant Nos. 1 and 2	PS18-11	ETAP Model Updates for Plants Nos. 1 and 2	Brown and Caldwell	\$227,000	April 2020

DESIGN CONTRACTS AWARDED

Location(s)	Project Number	Project Name	Consultant	Amount of Award	Date of Award
Costa Mesa, Irvine, Santa Ana	7-66	Sunflower and Red Hill Interceptor Repairs	GHD	\$308,700	September 2019
Plant No. 1	P1-133	Primary Sedimentation Basins No. 6-31 Reliability Improvements at Plant No. 1	Carollo Engineers, Inc.	\$1,219,650	September 2019
Plant No. 1	P1-132	Uninterruptable Power Supply Improvements at Plant No. 1	Tetra Tech, Inc.	\$784,680	October 2019
Seal Beach	3-67	Seal Beach Pump Station Replacement	Lee & Ro	\$5,947,850	November 2019
Plant Nos. 1 and 2	J-98	Electrical Power Distribution System Improvements	Brown and Caldwell	\$2,240,000	January 2020
Plant Nos. 1 and 2	J-98	Electrical Power Distribution System Improvements	SEL Eng. Services, Inc.	\$1,297,000	March 2020
Newport Beach	5-68	Newport Beach Pump Station Pressurization Improvements	Dudek	\$543,000	May 2020

CONSTRUCTION CONTRACTS AWARDED

Location(s)	Project Number	Project Name	Contractor	Amount of Award	Date of Award
Plant No. 1	FE16-06	Fuel Cell Facilities Demolition	MMC, Inc.	\$474,000	July 2019
Plant No. 1	P1-129	Return Activated Sludge Piping Replacement at Activated Sludge Plant No. 1	Abhe & Svoboda, Inc.	\$6,863,100	July 2019
Plant No. 2	P2-123	Return Activated Sludge Piping Replacement at Plant No. 2	Shimmick Construction Co., Inc.	\$6,042,100	September 2019
Anaheim, Placentia	FE17-06	Tustin Ave Manhole and Pipe Repair	Nuline Technologies, LLC	\$350,000	October 2019
Brea	FE17-01	Carbon Canyon Pipeline Sag Repairs	Mike Plich and Sons, Inc.	\$510,000	November 2019
Seal Beach, Westminster	3-62	Westminster Blvd Force Main Replacement	Teichert Energy & Utilities Group, Inc.	\$27,743,000	December 2019
Plant No. 2	P2-122	Headworks Modifications at Plant No. 2 for GWRS Final Expansion	Shimmick Construction Co., Inc.	\$14,487,700	January 2020
Plant Nos. 1 and 2	FE18-11	Headworks Explosive Gas Monitoring Systems at Plant No. 1 and No. 2	Baker Electric	\$2,214,000	March 2020
Plant No. 2	FE18-17	Trunkline Sampler Power Feed at Plant No 2	M. Brey Electric, Inc.	\$101,000	April 2020
Plant No. 2	FE18-19	12KV Distribution B and East RAS Pump Station Roofing Replacement	O'Connell Engineering & Construction, Inc.	\$674,800	June 2020
Plant No. 1	P1-128C	Headquarters Complex Site Preparation	Resource Environmental, Inc.	\$1,555,000	June 2020

CONSTRUCTION CONTRACTS COMPLETED					
Location(s)	Project Number	Project Name	Contractor	Total Contract Amount	Date of Completion
Plant No. 2	P2-92A	Truck Loading Bay Odor Control at Plant 2	Kiewit Infrastructure West Co.	\$3,671,733	August 2019
Newport Beach	6-17	District 6 Trunk Sewer Relief	Charles King Company, Inc.	\$4,194,661	September 2019
Newport Beach	FE15-10	East Lido Force Main Rehabilitation	Charles King Company, Inc.	\$1,459,170	September 2019
Plant Nos. 1 and 2, OCSD Service Area	J-126I	Exit Signs Exit Lights Electrical Disconnects Gas Detection	Helix Electric	\$866,809	October 2019
Plant Nos. 1 and 2, Huntington Beach, Newport Beach	J-126AH	Hot Surfaces Insulation P1/P2/Bay Bridge PS/Slater PS	Amtek Construction	\$471,434	December 2019
Plant Nos. 1 and 2, OCSD Service Area	J-126BFG	Lights, Ladder and Walkway Hazards	Amtek Construction	\$558,410	December 2019
Plant Nos. 1 and 2	J-126T	Insulation of E/G Exhaust Pipe Supports at Plant Nos. 1 and 2	Jamison Engineering	\$30,500	December 2019
Plant Nos. 1 and 2	J-117A	Interplant Effluent Pipeline Rehabilitation	Shimmick Construction Co., Inc.	\$13,589,236	January 2020
Plant No. 1	FE15-07	Secondary Treatment and Plant Water VFD Replacement at Plant No. 1	Helix Electric	\$1,887,543	March 2020
Cypress, Fullerton, Newport Beach, Seal Beach	J-126L	Safety Improvements at Various Pump Stations	IQA Construction	\$232,633	March 2020
Plant No. 1	FE14-05	Plant No. 1 Fleet Services UST Leak Remediation	Engineering/Remediation Resources Group, Inc.	\$674,760	April 2020
Plant No. 1	P1-101	Sludge Dewatering and Odor Control at Plant No. 1	W.M. Lyles Company	\$139,772,000	April 2020
Plant No. 2	P2-110	Consolidated Demolition and Utility Improvements at Plant No. 2	Flatiron West, Inc.	\$18,197,000	April 2020
Yorba Linda	2-41-8	SARI Rock Stabilizers Removal	Griffith Company	\$2,304,270	June 2020
Plant No. 1	FE16-06	Fuel Cell Facilities Demolition	MMC, Inc.	\$481,337	June 2020
Plant No. 1	FE17-05	Plant No. 1 ICS Network Extension	RP Controls	\$333,831	June 2020



On the SARI Rock Stabilizers Removal Project, over 20,000 tons of large rocks that protected the original SARI line were removed from the Santa Ana River riverbed. Shown here is the staging area the rocks were taken to where they were loaded and weighed before hauled offsite.

ENGINEERING CIP PROJECTS

The following lists are projects that were active or completed during the 2019-20 fiscal year. The status, phase, and project budget (rounded to the nearest thousand) shown in each table are as of June 30, 2020. Small capital or non-engineering projects from Information Technology and Operations and Maintenance are not listed.



A backhoe lifts a 2-foot long piece of pipe on the Carbon Canyon Pipeline Sag Repairs project in the City of Brea.

PLANNING AND RESEARCH STUDIES

Location(s)	Project Number	Project Name	Status	Project Budget
Huntington Beach	PS15-02	Edinger Pump Station Rehabilitation Study	Active	\$971,000
Plant Nos. 1 and 2	PS15-06	Seismic Evaluation of Structures at Plant No. 1 and No. 2	Completed	\$3,860,000
OCSD Service Area	PS15-08	Collections Capacity Evaluation Study	Active	\$3,682,000
Plant Nos. 1 and 2, OCSD Service Area	PS15-10	2017 Facilities Master Plan	Completed	\$3,850,000
Plant Nos. 1 and 2, OCSD Service Area	PS16-01	Stormwater Master Plan	Completed	\$1,416,000
Plant No. 2	PS16-02	SCE Feed Reliability Improvements Study	Completed	\$293,000
OCSD Service Area	PS17-02	Guidelines for Development in the Area of OCSD Facilities	Completed	\$176,000
Plant No. 2	PS17-03	Active Fault Location Study at Plant No. 2	Active	\$1,300,000
Plant Nos. 1 and 2	PS17-04	Office Workspace Study for Plant No 1 and No. 2	Completed	\$110,000
Plant Nos. 1 and 2, OCSD Service Area	PS17-08	CEQA - Facilities Master Plan	Active	\$1,170,000
Plant No. 2	PS17-10	Emergency Overflow Weirs, Wing Wall Structural and Geotechnical Investigations	Completed	\$465,000
Plant Nos. 1 and 2, OCSD Service Area	PS18-01	Asset Management Plan Development	Completed	\$420,000
Fountain Valley	PS18-02	Bushard Diversion Structure Rehabilitation Study	Completed	\$96,000
Plant No. 2	PS18-05	Plant No. 2 Future Site Plan Development	Active	\$217,000
Plant Nos. 1 and 2, OCSD Service Area	PS18-06	Go/No-Go Lights and Signage	Active	\$495,000
Plant Nos. 1 and 2, OCSD Service Area	PS18-07	ASCE Review of CIP Program	Completed	\$50,000
Plant No. 2	PS18-09	Ocean Outfall Condition Assessment and Scoping Study	Active	\$1,850,000
Plant No. 2	PS18-10	Root Cause Analysis of Malfunctioning Process Units at TFSC Facility at Plant No. 2	Completed	\$41,000
Plant Nos. 1 and 2	PS18-11	ETAP Model Updates for Plant Nos 1 and 2	Active	\$553,000
Plant No. 1	PS19-01	Digester 6 Pipe Stress Analysis at Plant No. 1	Active	\$45,000
Plant No. 1	PS19-02	Circular Primary Clarifier Replacement Phasing Study at Plant No 1	Completed	\$53,000
Plant No. 1	PS19-03	Laboratory Rehabilitation Feasibility Study	Active	\$450,000
Plant Nos. 1 and 2, OCSD Service Area	RE17-01	Operational Research Technical Support FY18-19	Completed	\$650,000
Plant Nos. 1 and 2	RE17-02	Biogas Scrubber Evaluation	Active	\$865,000
Newport Beach	RE17-03	Reliant Wet Well Wizard Test	Completed	\$74,000
Plant Nos. 1 and 2	RE17-04	AquaNereda Aerobic Granular Sludge Process	Active	\$242,000
Plant No. 1	RE18-01	Trickling Filter Bleach Test at Plant No. 1	Completed	\$125,000
Plant No. 1	RE18-02	Protein Matrix Demonstration Study at Plant No 1	Active	\$150,000
Plant No. 1	RE19-01	Primary Scum Equipment Evaluation at Plant No. 1	Active	\$31,000
Plant Nos. 1 and 2, OCSD Service Area	SP-196	Process Control Systems Upgrades Study	Active	\$3,554,000

RECLAMATION PLANT NO. 1 PROJECTS LOCATED IN FOUNTAIN VALLEY			
Project Number	Project Name	Phase	Project Budget
P1-100	Digester Rehabilitation at Plant No. 1	Completed	\$66,000,000
P1-101	Sludge Dewatering and Odor Control at Plant No. 1	Close Out	\$199,500,000
P1-105	Headworks Rehabilitation at Plant 1	Design	\$406,000,000
P1-115	Title 24 Access Compliance and Building Rehabilitation Project	Close Out	\$14,043,000
P1-115B	Rehabilitation of Fleet Services Building, Building 8 and Paving Area	Close Out	\$4,357,000
P1-128A	Headquarters Complex at Plant No. 1	Design	\$163,468,000
P1-128C	Headquarters Complex Site Preparation	Construction	\$2,673,000
P1-129	Return Activated Sludge Piping Replacement at Activated Sludge Plant No. 1	Construction	\$10,300,000
P1-132	Uninterruptable Power Supply Improvements at Plant 1	Preliminary Design	\$7,000,000
P1-133	Primary Sedimentation Basins No. 6-31 Reliability Improvements at Plant No. 1	Design	\$12,000,000
P1-134	South Perimeter Security and Utility Improvements at Plant No.1	Design	\$10,500,000
P1-135	Digester Ferric Chloride Piping Replacement at Plant No. 1	Design	\$1,360,000

TREATMENT PLANT NO. 2 PROJECTS LOCATED IN HUNTINGTON BEACH			
Project Number	Project Name	Phase	Project Budget
P2-92	Sludge Dewatering and Odor Control at Plant 2	Construction	\$86,768,000
P2-92A	Truck Loading Bay Odor Control at Plant 2	Completed	\$3,709,000
P2-98A	A-Side Primary Clarifiers Replacement at Plant 2	Design	\$221,054,000
P2-98B	B/C-Side Primary Clarifiers Interim Repair at Plant 2	Construction	\$13,645,000
P2-107	SCADA System and Network Upgrades	Completed	\$5,000,000
P2-110	Consolidated Demolition and Utility Improvements at Plant 2	Close Out	\$31,000,000
P2-118	Activated Sludge Aeration Basin Deck Repair at Plant No. 2	Completed	\$1,700,000
P2-122	Headworks Modifications at Plant No. 2 for GWRS Final Expansion	Construction	\$54,000,000
P2-123	Return Activated Sludge Piping Replacement at Plant 2	Construction	\$20,000,000
P2-124	Interim Food Waste Receiving Facility	Design	\$6,300,000
P2-126	Warehouse, Electrical Substation and 12kV Service Center Replacement at Plant No. 2	Project Development	\$9,800,000
P2-128	TPAD Digester Facility at Plant 2	Project Development	\$405,100,000

JOINT FACILITIES PROJECTS LOCATED AT PLANT NO. 1, PLANT NO. 2, AND/OR OCSD SERVICE AREA			
Project Number	Project Name	Phase	Project Budget
J-36-2	GWRS Final Expansion Coordination	Construction	\$1,132,000
J-98	Electrical Power Distribution System Improvements	Preliminary Design	\$26,500,000
J-117A	Interplant Effluent Pipeline Rehabilitation	Close Out	\$17,295,000
J-117B	Outfall Low Flow Pump Station	Construction	\$136,020,000
J-124	Digester Gas Facilities Rehabilitation	Design	\$173,000,000
J-126	Safety Improvements Program	Construction	\$16,000,000
J-127	Natural Gas Pipelines Replacement at Plant Nos. 1 and No. 2	Bid and Award	\$1,610,000
J-128	Project Management Information System	Construction	\$2,280,000
J-131	18150 Mt. Langley Street Building Purchase and Improvement	Completed	\$10,200,000

COLLECTION SYSTEM PROJECTS				
Location(s)	Project Number	Project Name	Phase	Project Budget
Yorba Linda	2-41-8	SARI Rock Stabilizers Removal	Close Out	\$4,860,000
Fullerton	2-65	Newhope - Placentia Trunk Grade Separation Replacement	Close Out	\$4,300,000
Anaheim, Fullerton	2-72	Newhope-Placentia Trunk Replacement, Segment A	Completed	\$29,090,000
Anaheim	2-72B	Newhope-Placentia Trunk Replacement, Segment B	Construction	\$82,910,000
Seal Beach, Westminster	3-62	Westminster Blvd Force Main Replacement	Construction	\$54,000,000
Anaheim, Buena Park, Cypress	3-64A	Orange-Western Sub-Trunk Rehabilitation	Bid and Award	\$16,890,000
Cypress, Los Alamitos, Seal Beach	3-64B	Los Alamitos Trunk Sewer Rehabilitation	Design	\$56,886,000
Cypress, La Palma, Los Alamitos	3-64C	Cypress Trunk Sewer Rehabilitation - West	Preliminary Design	\$80,210,000
Fountain Valley	3-66	Interstate 405 Widening Project Impacts on OCSD Sewers	Construction	\$528,000
Seal Beach	3-67	Seal Beach Pump Station Replacement	Preliminary Design	\$78,900,000
Newport Beach	5-67	Bay Bridge Pump Station Replacement	Preliminary Design	\$64,000,000
Newport Beach	5-68	Newport Beach Pump Station Pressurization Improvements	Preliminary Design	\$4,066,000
Newport Beach	6-17	District 6 Trunk Sewer Relief	Close Out	\$7,965,000
Tustin, Irvine, Santa Ana	7-37	Gisler - Red Hill Trunk Improvements - Reach B	Completed	\$25,213,000
Costa Mesa, Irvine	7-65	Gisler - Red Hill Interceptor Rehabilitation	Project Development	\$14,800,000
Irvine, Santa Ana	7-66	Sunflower and Red Hill Interceptor Repairs	Project Development	\$5,500,000

SMALL CONSTRUCTION PROJECTS				
Location(s)	Project Number	Project Name	Phase	Project Budget
Brea, Fullerton	FE10-21	Area 02 Craig Regional Park Manhole Improvements	Design	\$1,359,000
Plant No. 2	FE13-04	Plant No. 2 Trickling Filter Chemical Odor Control	Completed	\$4,853,000
Plant No. 2	FE14-03	Rehabilitation of Digester Mixing Pumps at P2 Digesters E, H, R, S, and T	Completed	\$1,178,000
Plant No. 1	FE14-05	Plant No. 1 Fleet Services UST Leak Remediation	Close Out	\$1,487,300
Plant No. 2	FE15-06	Gas Compressor Building Piping Replacement at Plant No. 2	Completed	\$1,605,000
Plant No. 1	FE15-07	Secondary Treatment and Plant Water VFD Replacement at Plant 1	Close Out	\$3,319,600
Plant No. 1	FE15-09	CenGen Hot Water Pipe Bracing at Plant 1	Completed	\$361,000
Newport Beach	FE15-10	East Lido Force Main Rehabilitation	Close Out	\$2,228,000
Plant No. 2	FE16-05	Buried Water Valve Support Upgrades at Plant 2	Completed	\$254,800
Plant No. 1	FE16-06	Fuel Cell Facilities Demolition	Close Out	\$960,000
Plant No. 1	FE16-10	East Basin Distribution Box Repair	Completed	\$1,013,850
Irvine	FE16-11	Lane Channel Crossing	Close Out	\$500,000
Huntington Beach	FE16-14	Slater Pump Station Valve Replacements	Completed	\$946,940
Brea	FE17-01	Carbon Canyon Pipeline Sag Repairs	Construction	\$873,000
Plant No. 1	FE17-03	Battery Storage System at Plant No. 1	Construction	\$592,000
Plant No. 1	FE17-05	Plant No. 1 ICS Network Extension	Construction	\$950,000
Newport Beach	FE17-08	Big Canyon Trunk Sewer Realignment - BCCC Maintenance Yard	Completed	\$80,750
Fountain Valley	FE18-01	Interim Relocation to 18350 Mt. Langley	Completed	\$353,800
Plant No. 2	FE18-04	Activated Sludge Basin Lighting Repair at Plant No. 2	Completed	\$52,900
Plant Nos. 1 and 2	FE18-06	CenGen Instrument Air Compressors Replacement at Plant No. 1 and No. 2	Design	\$1,450,000
Santa Ana	FE18-08	West Trunk Bypass Sewer Realignment	Construction	\$158,000
Fountain Valley	FE18-10	Mt Langley HVAC Replacement and Upgrades	Completed	\$573,540
Plant Nos. 1 and 2	FE18-11	Headworks Explosive Gas Monitoring Systems at Plant No. 1 and No. 2	Construction	\$470,000
Huntington Beach	FE18-12	Erosion Control at Santa Ana River and Hamilton Ave	Design	\$245,000
Santa Ana	FE18-13	Redhill Relief Sewer Relocation at State Route 55	Design	\$1,540,000
Plant No. 2	FE18-14	Plant Water Pipeline Replacement in Kinnison, Lindstrom, and Scott Tunnels at Plant No. 2	Design	\$1,425,000
Plant No. 2	FE18-15	Plant Boiler System Relief at Plant No. 2	Design	\$180,000
Plant No. 1	FE18-16	Truck Loading Basement Drain Modifications at Plant No. 1	Design	\$440,000
Plant No. 2	FE18-17	Trunkline Sampler Power Feed at Plant No. 2	Construction	\$215,000
Newport Beach	FE18-18	Portable Generator Connector at Lido Pump Station	Close Out	\$106,000

SMALL CONSTRUCTION PROJECTS (continued)				
Location(s)	Project Number	Project Name	Phase	Project Budget
Plant No. 2	FE18-19	12KV Distribution B and East RAS Pump Station Roofing Replacement	Construction	\$988,000
Plant No. 1	FE18-20	Blower Building No. 1 Air Compressors at Plant No. 1	Project Development	\$1,200,000
OCSD Service Area	FE19-01	Pump Station Portable Generator Connectors	Design	\$1,990,000
Plant No. 1	FE19-02	Cengen Plant Water Pipe Replacement at Plant No. 1	Design	\$2,250,000
Plant No. 1	FE19-03	Trickling Filter Sludge and Scum Pumps Replacement at Plant No. 1	Project Development	\$700,000
Plant No. 1	FE19-04	Sunflower Pump Replacement at Plant No. 1	Design	\$6,300,000
Plant No. 1	FE19-05	Engineering Trailer B Car Chargers at Plant No. 1	Construction	\$12,000
Plant No. 2	FE19-06	EPSA Motor Cooling Improvements at Plant No. 2	Design	\$550,000
Plant No. 2	FE19-08	Secondary Treatment VFD Replacements at Plant No. 2	Design	\$3,337,000
Fullerton	FE19-09	Newhope - Placentia Trunk Grade Separation Replacement Repairs	Design	\$500,000
Plant No. 2	FE19-10	Digesters C, D, F, G and I Gas Balance Lines Replacement at Plant No. 2	Design	\$200,000
Plant No. 1	FE19-11	Primary Clarifiers Nos. 6-31 Lighting and Alarm Improvements at Plant No. 1	Project Development	\$1,250,000
Plant No. 1	FE19-12	Rebuild Shop Fume Extractor Installation at Plant No. 1	Project Development	\$325,000



Plug valve being set on a flatbed truck on the East Basin Distribution Box Repair at OCSD Plant No. 1.

Awards

American Academy of Environmental Engineers and Scientists

2020 Grand Prize Excellence in Environmental Engineering and Science, Planning Category - Climate Resiliency and Adaptation Plan

California Water Environment Association

2020 2nd Place Community Engagement and Outreach: Project of the Year, Large - State College Sewer Construction Outreach Program

Orange County Business Council

2019 Turning Red Tape into Red Carpeting - Interim Food Waste Receiving Facility

Santa Ana River Basin Section of California Water Environment Association

2020 1st Place Community Engagement and Outreach: Project of the Year, Large - State College Sewer Construction Outreach Program

Spotlight Award Winner - Cindy Murra, Engineer

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Reclamation Plant No. 1 (Administration Offices)
10844 Ellis Avenue • Fountain Valley, California 92708 • 714.962.2411

Treatment Plant No. 2
22212 Brookhurst Street • Huntington Beach, California 92646

For more information
Email: constructionhotline@ocsd.com • Phone: 714.378.2965 • www.ocsd.com

